

**From:** Ephraim, Gary  
**Sent:** Wednesday, September 29, 2010 1:56 PM  
**To:** Newcomb, Chris  
**Subject:** FW: WESP Inspection

FYI, the following pictures may be of interest to you regarding the WESP broken electrode:

- DSC03047 - Overall view of top of WESP showing the electrodes, stud bolts/hangers, and honecomb cells.
- DSC03061 - Broken electrode hanger stud bolt.
- DSC03064 - Broken electrode resting on the distribution tray

<< File: DSC03047.JPG >> << File: DSC03061.JPG >> << File: DSC03064.JPG >>

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**From:** Ephraim, Gary  
**Sent:** Friday, September 17, 2010 7:00 AM  
**To:** Walsh, John  
**Cc:** Janik, Jeff; Fillar, Jim; Reynolds, Keith E.; Cordina, Matt; Bradel, Todd; Wolters, Bradley; Roderick, Timothy  
**Subject:** WESP Inspection

The WGS performance improvement technical team was able to enter the WESP this afternoon, along with Herbert Bruekman of GEA Bischoff (Lurgi). The following are highlights of this inspection:

- One electrode rod had previously been observed, though the manwy, laying on top of the gas distribution plate below the WESP. Upon entry into the top of the WESP, the stud bolt holding this electrode to the upper buss grid was found to be broken. When the stud bolt broke, the electrode dropped through the grid. (See attached photo DSC03061)
- The electrode was found resting on the distribution tray as well as resting against the weight guide connected to the lower buss grid, which would have been a primary reason for the high voltage short (See attached photo DSC03064)
- A large number of stud bolts on the east side of the WESP were found to be loose and not tightened. This connection consists of a set of washers and nuts fastening the stud to the buss grid and another set of nuts holding the electrode. Most of the washers were either very thin or missing, allowing the nuts to come loose and the stud connection to move (wiggle).
- One of the nuts on the east side was found to be very pitted and thin, potentially from corrosion. This was unusual as there only was one nut that was found in this condition (See attached photo DSC03053)
- In looking through the gas distribution tray at the WGS nozzles in the WGS wash section below, there were several nozzles that appeared from a distance to be potentially plugged. All the nozzles will be inspected, as well as the lances, following cleaning and scaffolding of the WGS.

In addition to the inspection of the WESP, several of the the team members looked at the WGS circulation pumps (G-34's) and also talked to Les Alexander. The implellers were "nicked" and gouged and there were large clearances between the impeller and the case wear ring. Les told us that the specified clearance was supposed to be .015" while it looked like the clearances were more than 1/8". This large clearance could be a good reason for degraded pump performance. Les is planning to replace the impeller and wear ring on one of the three circulation pumps.

The GEA Bischoff (Lurgi) field service representative will be mapping the loose and failed electrode support bolts Friday morning.

At this point, the performance technical team will compile and evaluate the inspection observations/findings. It is assumed that the T/A technical team will take the lead on the T/A repairs with support and assistance as needed from our team. Action items for performance improvement will also be evaluated and developed.